

national goal, expressed in Section 254(b)(2)(A) of the Communications Act, as amended, of enhancing access to advanced telecommunications and information services for all public and nonprofit elementary and secondary school classrooms, health care providers, and libraries.¹⁰⁹ Markle argues that parcelling spectrum out in geographic slivers would foreclose the opportunity for a nationwide system because of the high transaction costs, and that although a nationwide license may be out of their reach, smaller entities will be able to participate in WCS through the proposed disaggregation and partitioning provisions.¹¹⁰ In addition, MCI believes that nationwide licensing would facilitate construction of an efficient and uniform WCS "infrastructure" that could be used by the licensee and others to provide services and content.¹¹¹ ADC and SIA contend that the Commission should license a portion of WCS spectrum, the 2345-2360 MHz band, on a nationwide basis because otherwise DARS proponents will not have an opportunity to secure, at an auction, the national footprint necessary to develop viable DARS service.¹¹²

49. Commenters opposed to nationwide licensing generally argue that such a plan would restrict the number of entities (especially small businesses) capable of bidding in the WCS auction and providing WCS service.¹¹³ In addition, some contend that nationwide licensing would leave many areas unserved or result in delays in service to rural areas.¹¹⁴ Others are concerned that nationwide licensing of WCS would undermine the reasonable expectations of MTA- and BTA-based PCS licenses and their investors, making it more

¹⁰⁹ APT Reply Comments at 3-4.

¹¹⁰ Markle Comments at 11.

¹¹¹ MCI *Ex Parte* Presentation, December 19, 1996, at 5.

¹¹² ADC Comments at 5-6; SIA Comments at 3. As noted below, however, ADC believes that the 15 MHz of spectrum at 2305-2320 MHz should be licensed on the basis of BTAs. See ADC Comments at 19.

¹¹³ See, e.g., PCIA Comments at 13; PRTC Comments at 4; PrimeCo Comments at 10; TDS Comments at 6; Sprint PCS/Sprint Comments at 5; Omnipoint Comments at 9, 13; Pacific Comments at 2; GTA Comments at 2; DigiVox Comments at 9; AirTouch Comments at 6-7; ALLTEL Comments at 3-4; AT&T Comments at 2; BANM Comments at 6-7; CTIA Comments at 13-14; NextWave Reply Comments at 3; Omnipoint Reply Comments at 4; SOSCO Reply Comments at 5; SNET Mobility Reply Comments at 3; Ameritech Reply Comments at 1-2; Bell Atlantic Reply Comments at 1-2; RTG Reply Comments at 1-2 (asserting preclusion of designated entities, particularly rural telephone companies and small businesses).

¹¹⁴ See, e.g., PCIA Comments at 3, 14; TDS Comments at 2-4; GTE Comments at 4; Pacific Comments at 4; AirTouch Comments at 5-6; CTIA Comments at 13-14; Omnipoint Reply Comments at 6-7; AT&T Reply Comments at 4.

difficult for those licensees to obtain financing and continue the build-out of their systems.¹¹⁵ Finally, some commenters state that an auction of nationwide licenses would decrease auction competition¹¹⁶ and raise less auction revenue¹¹⁷ than an auction of smaller area licenses.

50. Use of service areas based on the Major Trading Areas (MTAs) and the Basic Trading Areas (BTAs) designated by Rand McNally¹¹⁸ received the most support from commenters. For example, BANM states that MTAs and BTAs have proven to be efficient market sizes for CMRS with respect to roaming and interoperability and that larger license areas would not produce any greater efficiencies for WCS. BANM believes that MTAs and BTAs provide the most flexibility, permitting service area aggregation where economically efficient while not forcing carriers to acquire (and potentially not serve) unwanted areas.¹¹⁹ Supporters of MTA licensing for WCS generally believe that this service area size will: (1) encourage the most diverse group of service providers due to lower costs of participating in the auction and creating a network to provide service;¹²⁰ (2) facilitate interoperability and allow for economies of scale that will encourage the development of low cost equipment;¹²¹ (3) result in the broadest flexibility in terms of service offerings by WCS licensees;¹²² and (4) be fairer to existing service providers and/or result in greater levels of competition between both new and existing providers.¹²³ Commenters favoring BTA service areas for WCS contend that BTAs will: (1) promote efficiency by allowing a bidder to acquire licenses for

¹¹⁵ See PCIA Comments at 3, 15; Sprint PCS/Sprint Comments at 8-9; SBC Comments at 5; AirTouch Comments at 7; ALLTEL Comments at 3-4.

¹¹⁶ See, e.g., AT&T Reply Comments at 4.

¹¹⁷ See PCIA Comments at 3, 15; RTG Comments at 6; BANM Comments at 6-7.

¹¹⁸ See Rand McNally 1992 Commercial Atlas & Marketing Guide.

¹¹⁹ BANM Comments at 3-6.

¹²⁰ See AT&T Comments at 3-4; Pacific Comments at 2; GTA Comments at 2; DigiVox Comments at 13; PCIA Comments at 13; ALLTEL Comments at 3; BANM Comments at 3-6; NextWave Reply Comments at 3; Bell Atlantic Reply Comments at 1-2; Mtel Reply Comments at 3-4.

¹²¹ See DSC Comments at 4.

¹²² See Pacific Comments at 2; PCIA Comments at 17; AT&T Comments at 3; BANM Comments at 4.

¹²³ See PRTC Comments at 3-4; PCIA Comments at 17; PrimeCo Comments at 9-10; SNET Mobility Reply Comments at 3 (advocating BTAs or MTAs).

only as much area as required for its prospective service;¹²⁴ (2) increase the number of entities able to participate in the auction,¹²⁵ particularly small businesses and rural telephone companies ("rural telcos");¹²⁶ (3) improve opportunities for current broadband PCS C and F Block licensees with overlapping BTA networks to lease infrastructure and other support to independent WCS licensees;¹²⁷ and (4) ensure the rapid build-out of WCS systems.¹²⁸

51. Some commenters suggest that WCS service areas be based on the 172 Economic Areas ("EAs") developed by the Bureau of Economic Analysis of the U.S. Department of Commerce.¹²⁹ These commenters raise arguments similar to those supporting MTAs or BTAs, such as a larger number of entities being able to participate in the service, and use of EAs resulting in increased competition in the industry,¹³⁰ particularly from small businesses and rural telcos.¹³¹ One commenter notes, however, that defining WCS service areas based upon EAs would contravene the interests of customers and carriers by confusing and disrupting an already-complex pattern of CMRS service areas (*i.e.*, MSAs and RSAs for cellular, MTAs and

¹²⁴ See Omnipoint Comments at 8; GTE Comments at 4; Sprint PCS/Sprint Comments at 6; BellSouth Comments at 6-8; ADC Comments at 3; TDS Comments at 2-4; Pocket Comments at 3, citing "International Survey of Spectrum Assignment for Cellular and PCS," by Martin Spicer, at 19 (September, 1996); TDS Comments at 2-4, citing Statements of Robert J. Weber, Professor of Managerial Economics and Decision Sciences, Kellogg Graduate School of Management, Northwestern University, and of Steven S. Wildman, Associate Professor of Communication Studies and Director of the Telecommunications Science, Management and Policy Program at Northwestern University (both previously filed by TDS in the record in PP Docket No. 93-253 and GN Docket No. 90-314).

¹²⁵ See Omnipoint Comments at 9; Pocket Comments at 3; BellSouth Comments at 6-8; NextWave Reply Comments at 5; USIPA Reply Comments at 4; GTE Reply Comments at 8; Nextel Reply Comments at 7-8.

¹²⁶ Omnipoint Reply Comments at 4; RTG Reply Comments at 5-6.

¹²⁷ See Omnipoint Comments at 8. In a similar service specific argument, ADC proposes the licensing of the 2305-2320 MHz band on the basis of BTAs (of 15 MHz) because it believes that the benefits of permitting wireless cable operators to incorporate WCS into their service offerings would clearly be enhanced by establishing WCS service areas that are co-terminus with the BTA service areas afforded MDS licensees. Wireless cable operators would otherwise be forced to bid for WCS rights in areas where they cannot use WCS to provide services complimentary to wireless cable. ADC Comments at 19.

¹²⁸ See Sprint PCS/Sprint Comments at 7; USIPA Reply Comments at 4.

¹²⁹ See UTC Comments at 4; Vanguard Comments at 4-5; AirTouch Comments at 7-9; TTS Reply Comments at 2; USIPA Reply Comments at 4.

¹³⁰ UTC Comments at 4; Vanguard Comments at 4-5; USIPA Reply Comments at 4.

¹³¹ RTG Reply Comments at 5-6; TTS Reply Comments at 2.

BTAs for broadband PCS, and aggregated MTAs for some narrowband PCS services).¹³² Finally, one commenter recommends the use of MSAs and RSAs to define service areas for the WCS, noting that the use of these areas assured the rapid deployment of cellular services to rural areas, and afforded smaller entities a realistic chance to participate in the cellular industry.¹³³

52. Two commenters propose that we create a WCS service area that will cover the Gulf of Mexico.¹³⁴ SOSCO and PetroCom suggest that the increase in exploration and production activity in the Gulf of Mexico has resulted in a growing demand for voice, data and video telecommunications services which telecommunications providers in that area have been unable to meet because the spectrum used to provide such services has not been made available for licensing in the area.¹³⁵ Specifically, SOSCO contends that we should license WCS on the basis of MTAs, and issue a single WCS license for the Gulf of Mexico.¹³⁶

53. *Decision.* In deciding on the appropriate service areas size for WCS licenses, we must balance several factors. We wish to encourage the rapid deployment of new telecommunications technologies and services on WCS spectrum; thus, we must assess the use or uses to which this spectrum is likely to be put and determine the geographic scope that would best facilitate rapid deployment thereof. In addition, we believe that because this spectrum has not heretofore been used to provide commercial services and no equipment has yet been developed for use in this band, consumers would benefit if the WCS band plan enables equipment manufacturers to realize economies of scale that will translate to lower equipment costs to service providers. We also recognize that the Appropriations Act directed us to "assign the use of [WCS] frequencies by competitive bidding pursuant to section 309(j)."¹³⁷ Section 309(j) of the Communications Act includes as objectives for competitive bidding the avoidance of excessive concentration of licenses and the dissemination of licenses among a wide variety of applicants.¹³⁸ In addition, we are mindful of our statutory obligation to conduct the auction for WCS licenses to ensure that all proceeds are deposited by

¹³² BANM Comments at n. 7.

¹³³ RTG Comments at 3-4.

¹³⁴ SOSCO Comments at 3; PetroCom Comments at 5

¹³⁵ SOSCO Comments at 4.

¹³⁶ *Id.*

¹³⁷ See Appropriations Act, Section 3001(a)(2).

¹³⁸ See 47 U.S.C. § 309(j)(3)(B).

September 30, 1997, and of our experience in previous auctions, which has shown that simultaneous, multiple round auctions for a larger number of licenses are more complex and take longer to complete than similar auctions involving fewer licenses. Finally, we note that aggregation of both spectrum and service areas through the auction process has proven to be an effective method of allowing bidders to acquire the right amount of spectrum for their business needs.¹³⁹

54. Balancing the various factors noted above, we conclude that WCS will be licensed in two ways. First, with respect to the C and D blocks, WCS will be licensed on the basis of regional areas similar to those used in our narrowband PCS rules. In WCS, however, we will define the regions by aggregating EAs in the continental United States into 6 larger groupings. We will refer to these service areas as Regional Economic Area Groupings (REAGs). In addition, consistent with our approach in other services, we will create separate REAGs covering the five U.S. possessions, as follows: Guam and the Northern Mariana Islands (REAG # 9), Puerto Rico and the U.S. Virgin Islands (REAG # 10) and American Samoa (REAG # 11), as well as separate service areas for Alaska (REAG # 7) and Hawaii (REAG # 8).¹⁴⁰ As discussed more fully *infra*, we also will create a service area in the Gulf of Mexico (REAG # 12). Second, the A and B blocks will be licensed in smaller areas, by aggregating EAs into 46 areas (to be called Major Economic Areas, or MEAs) in the continental United States and an additional 6 areas covering Alaska (MEA # 47); Hawaii (MEA # 48); Guam and the Northern Mariana Islands (MEA # 49); Puerto Rico and the US Virgin Islands (MEA # 50); American Samoa (MEA # 51); and the Gulf of Mexico (MEA # 52).¹⁴¹ We believe that this licensing scheme satisfies the various and often conflicting positions raised by the commenters and will best accommodate our objectives under 309(j) of the Communications Act.

55. Specifically, the larger WCS license areas that we will provide for in the C and D blocks will accommodate those commenters who argue that large areas will (1) encourage the rapid development and deployment of innovative service; (2) facilitate interoperability and the setting of standards; (3) allow for economies of scale that will encourage the development of low cost equipment; and (4) facilitate provision of satellite DARS services. Many

¹³⁹ For example, in our nationwide narrowband PCS auction, bidders successfully aggregated spectrum to fit their business plans. Likewise, in the regional narrowband PCS and in the A/B block broadband PCS auctions, bidders successfully aggregated service areas.

¹⁴⁰ See *Implementation of Section 309(j) of the Communications Act -- Competitive Bidding, First Report and Order, Eighth Report and Order, and Second Further Notice of Proposed Rule Making*, PP Docket No. 93-253, 11 FCC Rcd 1463, 1484 (1995).

¹⁴¹ See Appendix C for a map showing REAGs and their constituent EAs, and Appendix D for a map showing REAGs and their constituent MEAs.

commenters in this proceeding point out that WCS spectrum can be used effectively to provide wireless local loop, broadband data services and DARS services. At least with respect to these services, there may be significant economic efficiencies that could be realized -- to the ultimate benefit of consumers -- if these services were to be provided with nationwide scope.¹⁴² Licensing the C and D blocks in WCS on a REAG basis may facilitate aggregation of service areas and speed implementation of these new services.

56. In addition, a number of commenters point out that ensuring technical coordination and minimizing interference across geographic areas is very difficult when the exact nature of the services to be provided is unknown and the spectrum may be used to provide a variety of service offerings.¹⁴³ AirTouch, for example, argues that under a flexible spectrum use plan, adjacent licensees will have difficulties developing efficient spectrum use plans because the adjacent licensee's service offerings are unknown.¹⁴⁴ The larger service areas in the C and D blocks will speed and simplify the process of interference coordination along geographic boundaries, as well as minimize transaction costs and disputes arising from interference, and facilitate implementation of services that would require roaming capabilities and easy interoperability. In addition, because equipment currently is not available for use in this band, the larger service areas in the C and D blocks also should enable manufacturers to achieve greater economies of scale in production of equipment, thus reducing its per-unit cost and allowing more rapid deployment of services to the ultimate benefit of consumers.

57. While we are mindful of the desire of some parties to have large licenses, we also agree with commenters that contend that smaller businesses will have more difficulty competing in the WCS auction for licenses in the large regions. In this regard, we believe that the creation of smaller MEAs in the A and B blocks (along with the large bidding credits provided for small businesses, *see* Section III.E.5, *infra*), will provide greater opportunities for smaller businesses to compete in an auction and participate in the provision of WCS services. We further note that, consistent with views of some commenters, these smaller service areas will: (1) enable a larger number of entities to participate in the provision of services and result in increased competition; (2) encourage a more diverse group of service providers due to the lower costs of participating in the auction; and (3) result in broader flexibility in service offerings by WCS licensees. We also believe that these smaller service areas will encourage efficiencies by making it easy for a bidder to acquire licenses for only as much area as required for its prospective service.

¹⁴² For example, because computers are generally marketed on a nationwide basis, a wireless Internet access service using personal computers would likely be most efficiently marketed nationwide.

¹⁴³ *See, e.g.*, Motorola Comments at 6-7; AirTouch Comments at 3.

¹⁴⁴ *See* AirTouch Comments at 3-4.

58. We note that some commenters support even smaller BTAs and MSAs/RSAs to facilitate participation in the WCS service by small businesses. We find that service areas based on such smaller areas might compromise our ability to complete the WCS auction within the statutorily mandated time frame. In any event, we note that in addition to the large bidding credits offered to small businesses, our provisions for partitioning and disaggregation (*see* Section III.D.3, *infra*) should work to provide significant opportunities to smaller businesses to participate in the provision of WCS services.

59. As noted above, two commenters, SOSCO and PetroCom, advocate licensing the Gulf of Mexico as a separate service area to help meet the growing communications needs of petroleum and natural gas providers in the area. In light of those requests, we designate a separate REAG and MEA covering the Gulf of Mexico. We determine that land-based license regions abutting the Gulf of Mexico will extend to the limit of the territorial waters of the United States in the Gulf, which is the maritime zone that extends approximately twelve nautical miles from the U.S. baseline. Beyond that line of demarcation, we will create the Gulf of Mexico REAG and MEA, which will extend from that line outward to the broadest geographic limits consistent with international agreements (*see* maps at Appendices C and D). The limits and coordination of signal strengths at the boundaries of the service areas meeting in the Gulf region will be the same as those that will apply for all service areas.

60. Finally, we note that several commenters argue that their suggested WCS licensed service area sizes will increase auction revenues.¹⁴⁵ We wish to make clear that, consistent with Section 309(j)(7)(A) of the Communications Act,¹⁴⁶ we have considered the communications needs of potential service providers and the American public in developing these service areas. We have not considered anticipated auction revenue.

B. Use of Competitive Bidding

61. *Background.* In the *NPRM*, we sought comment on our general assessment, based upon the requirements of both the Appropriations Act and Section 309(j) of the Communications Act, that WCS licenses should be awarded by means of competitive bidding.

62. *Comments.* We received no comments addressing our tentative conclusion that WCS licenses should be awarded through competitive bidding pursuant to Section 309(j).

¹⁴⁵ See, e.g., PCIA Comments at 3, RTG Comments at 6, BANM Comments at 6-7.

¹⁴⁶ 47 U.S.C. § 309(j)(7)(A).

63. *Decision.* We will adopt rules providing for the assignment of these frequencies through the use of competitive bidding pursuant to Section 309(j). As we noted in the *NPRM*, the Appropriations Act directs the Commission to assign licenses to use the 2305-2320 and 2345-2360 MHz bands through competitive bidding pursuant to Section 309(j) of the Communications Act. Section 309(j) provides that auctions may be used to award licenses among mutually exclusive applicants where the principal use of such spectrum will involve, or is reasonably likely to involve, a subscription-based service.¹⁴⁷ We continue to believe that it is reasonable to conclude that the principal use of WCS spectrum will involve, or is reasonably likely to involve, the transmission or reception of communications signals to subscribers for compensation. While we have decided to permit WCS licensees to provide a range of services, the uses of this spectrum most mentioned by commenters appear to involve services that would be provided on a subscription basis.¹⁴⁸ Fixed (and radiolocation) services that could be provided include services similar to the Multichannel Multipoint Distribution Service ("MMDS"), the Location and Monitoring Service ("LMS"), Digital Termination Systems ("DTS"), Digital Electronic Messaging Service ("DEMS"), wireless local loop, and certain of the services provided by Local Multipoint Distribution Service ("LMDS"). Although it may be technologically infeasible to provide mobile services as a WCS offering in the near future due to the necessity for strict technical standards (*see* Section III.D.7, *infra*), services that may ultimately be provided include those similar to PCS, cellular, Specialized Mobile Radio ("SMR") and paging. All of these services currently are provided to subscribers for compensation and we believe that it is reasonable to expect that WCS offerings will be provided on a similar basis. In this regard, even if a WCS licensee chooses to offer a satellite DARS service on that portion of the spectrum available for such use, we believe it is likely that such service also will be offered on a subscription basis.¹⁴⁹

64. Our decision today also advances the objectives contained in Section 309(j) of the Communications Act. Section 309(j)(3)(A) directs the Commission to seek to promote the development and rapid deployment of new technologies, products, and services for the benefit

¹⁴⁷ 47 U.S.C. § 309(j)(1), (2).

¹⁴⁸ *See* paragraph 27, *supra*.

¹⁴⁹ We note that, during the Commission's ongoing proceeding to establish service rules for satellite DARS, three of the four applicants proposed to offer services through a private contractual relationship with the subscribing audience using a scrambled signal. *See Satellite DARS NPRM, supra*, at ¶¶ 22-26. In contrast, a broadcasting service involves the transmission of programming intended for direct reception by the general public. *See* 47 C.F.R. § 2.1. Thus, we stated that, since three applicants have proposed to provide non-broadcast service within the meaning of Section 2.1 of the Commission's Rules, a requirement that all DARS licensees operate as broadcasters appears to be unwarranted and inappropriate. *See Subscription Video*, 2 FCC Rcd 1001, 1006 (1987) (licensees that limit receipt of program services to paying subscribers are providing non-broadcast services), *aff'd sub nom., National Association for Better Broadcasting v. FCC*, 849 F.2d 665 (D.C. Cir. 1988).

of the public, including those residing in rural areas, without administrative or judicial delays. In this regard, we believe that our service and licensing rules, in conjunction with our allocation plan, will allow for and foster the development of a range of new services and technologies. These policies also will advance the objective, expressed in Section 309(j)(3)(B), of promoting economic opportunity and competition and ensuring that new and innovative technologies are readily accessible to the American people by avoiding excessive concentration of licenses and by disseminating licenses among a wide variety of applicants, including small businesses, rural telcos, and businesses owned by members of minority groups and women.¹⁵⁰

65. The Appropriations Act states that in making these frequencies available for competitive bidding, the Commission shall seek to promote the most efficient use of the spectrum.¹⁵¹ As we stated in the *NPRM*, we believe that our competitive bidding rules will ensure that spectrum is made available to those who value it most highly and therefore are most likely to put it to its most economically efficient use. This outcome will be further assured by our use of a simultaneous, multiple round auction that will allow applicants to aggregate spectrum and service areas into parcels of efficient size and to realize economies of scale and scope without the need for costly and time consuming post-auction transactions. In addition, as indicated above, we have decided to permit the WCS licensee to provide fixed, mobile, radiolocation or satellite DARS services. We believe there are significant competitive alternatives for each of these types of services that will ensure that WCS licensees have incentives to operate in an efficient and effective manner. We therefore believe that there will be sufficient market incentives to promote the most efficient use of the 2305-2320 and 2345-2360 MHz bands, as required by the Appropriations Act and Section 309(j)(3)(D) of the Communications Act.

¹⁵⁰ See 47 U.S.C. § 309(j)(3)(B). In revising our rules governing the issues of geographic partitioning and spectrum disaggregation by CMRS licensees, we noted that providing licensees with the flexibility to partition their geographic service areas will create smaller areas that can be licensed to small businesses, including those entities which may not have the resources to participate successfully in spectrum auctions. See *Geographic Partitioning and Spectrum Disaggregation by Commercial Mobile Radio Services Licensees; Implementation of Section 257 of the Communications Act -- Elimination of Market Entry Barriers ("Partitioning and Disaggregation R&O")*, WT Docket No. 96-148, *Report and Order and Further Notice of Proposed Rulemaking*, FCC 96-474, 62 FR 696 (rel. December 20, 1996).

¹⁵¹ See Appropriations Act, Section 3001(b)(1). As indicated above, promoting efficient spectrum use is also an objective of Section 309(j) of the Communications Act.

C. Consideration of Public Safety Needs

66. *Background.* As we discussed in the *NPRM*, the Appropriations Act instructs the Commission to take into account the needs of public safety radio services in making the WCS spectrum available through competitive bidding. Recognizing that the Appropriations Act marks the first time that Congress has specifically directed us to consider the needs of public safety radio services in connection with licensing a particular spectrum band, we sought comment generally on how we can best effectuate Congressional intent with regard to public safety needs as related to this spectrum.¹⁵² In addition, we noted that in a post-enactment letter, the Chairman and Ranking Member of the House Committee on Commerce suggest that the Commission, consistent with its obligation to promote the public interest, "pay particular attention to how the needs of public safety as well as commercial applicants may best be met in determining how to design this auction."¹⁵³ We referred to the recommendations made by the Public Safety Wireless Advisory Committee in its final report,¹⁵⁴ and asked interested parties how our WCS rules should be fashioned so as to benefit the public safety community consistent with those recommendations. Finally, we invited commenters to address a broad array of options, including making an allocation of some portion of the WCS spectrum for public safety entities, assigning the WCS spectrum with an obligation to contribute toward needs identified by the public safety community, and taking steps to encourage the use of WCS spectrum for services useful to public safety entities.

67. *Comments.* We received wide-ranging comment from diverse sources addressing the issue of public safety. Several commenters assert that public safety entities are unlikely to obtain spectrum through an auction because they lack sufficient resources to compete effectively with interested commercial service providers.¹⁵⁵ APCO contends that state and local governments should never be required to pay the federal government for the right to use radio spectrum for basic governmental activities such as the protection of life and property.¹⁵⁶

¹⁵² *NPRM* at ¶ 19; 61 Fed. Reg. at 59052.

¹⁵³ *Id.*; Letter to Reed E. Hundt from the Honorable Thomas J. Bliley, Jr., Chairman, and the Honorable John D. Dingell, Ranking Member, U.S. House of Representatives Committee on Commerce (dated October 25, 1996).

¹⁵⁴ *Final Report of the Public Safety Wireless Advisory Committee to the Federal Communications Commission and the national Telecommunications and Information Administration*, September 11, 1996 ("*PSWAC Final Report*").

¹⁵⁵ See, e.g., APCO Comments at 3; Motorola Comments at 8; AAR Reply Comments at 3.

¹⁵⁶ APCO Comments at 3.

68. Outside of the auction context, several commenters suggest that we consider allocating a portion of the WCS spectrum for use by public safety radio services,¹⁵⁷ or at least afford them higher priority,¹⁵⁸ and some argue that such an allocation would be within our authority under Section 3001(b)(2) of the Appropriations Act.¹⁵⁹ For example, Sprint PCS/Sprint suggests that the Commission set aside at least 10 MHz of spectrum in each licensing area for public safety use. Also, Sprint PCS/Sprint contends that it is not clear from the Appropriations Act that Congress intended that all of the spectrum reallocated for WCS be auctioned.¹⁶⁰ Along similar lines, Pocket suggests allocation of a significant (if not primary) portion of the WCS spectrum for public safety users who have been displaced from other spectrum.¹⁶¹ APCO contends that any set-aside must include enough spectrum to permit sufficient channel capacity and to stimulate equipment development.¹⁶² APCO contends that any allocation less than 3 MHz would be of not value.¹⁶³ In contrast, Vanguard believes that the Appropriations Act does not permit the Commission to allocate a portion of the spectrum for assignment to public safety uses without competitive bidding.¹⁶⁴ While Motorola and APCO believe that WCS spectrum could help provide some important public safety applications (including fixed point-to-point capacity, video and data), they also believe that Congressional clarification that auctions would not be required for some portion of the band would be needed before we could allocate it for public safety needs.¹⁶⁵ Moreover, APCO suggests that because the Appropriations Act requires that the Commission both auction the WCS spectrum and take into account the needs of public safety, the Commission should consult with Congress to determine the best means of achieving these "conflicting statutory

¹⁵⁷ PCIA Comments at 8, n. 11; PrimeCo Comments at 13-14; AAR Comments at 2; AWWA Comments at 3; Omnipoint Reply Comments at 3-4; AT&T Reply Comments at 6; TIA Reply Comments at 11 (advocating a set-aside with respect to fixed or temporary fixed public safety applications).

¹⁵⁸ Harris Comments at 4.

¹⁵⁹ PCIA Comments at 8, n. 11; PrimeCo Comments at 13-14.

¹⁶⁰ Sprint PCS/Sprint Comments at 3, 10-11. *See also* AAR Reply Comments at 3.

¹⁶¹ Pocket Comments at 5.

¹⁶² APCO Reply Comments at 2.

¹⁶³ *See Ex Parte Letter of January 30, 1997 from Robert M. Gurss, Counsel for APCO, to David Wye of the Wireless Telecommunications Bureau, at 1 ("APCO Ex Parte Letter of January 30, 1997").*

¹⁶⁴ Vanguard Comments at 6.

¹⁶⁵ Motorola Comments at 11; APCO Comments at 3-5.

objectives."¹⁶⁶ ITA believes that the "revenue-generation objective" of the Appropriations Act requires that any allocation made in this proceeding to accommodate public safety needs would be inconsequential.¹⁶⁷

69. Other commenters also suggest allocation for both public safety and broader safety-related operational needs. For example, API suggests that the Commission give consideration to the spectrum needs of the petroleum and natural gas industries, classified as "public service providers" in the *PSWAC Final Report*, in conjunction with the needs of other public safety providers, because the communications infrastructures of those industrial users are similar to those of traditional public safety entities in that they serve public safety needs pursuant to government mandates (e.g., maintenance of redundant communications systems) and provide traditional emergency response functions (e.g., environmental damage control).¹⁶⁸ API believes that public service providers have insufficient spectrum for their needs, and that none of the spectrum accommodations currently under consideration for public service providers offer the favorable propagation characteristics available in the 2 GHz range.¹⁶⁹ AAR asserts that, since the purpose of the fixed and mobile wireless networks operated by the railroad industry is to support the safe and reliable operation of the Nation's freight and passenger rail systems, the needs of those entities also should be included.¹⁷⁰ AAR stresses that, because private users are unable to financially compete against commercial providers at auction, and commercial service providers cannot or will not effectively meet railroads' nationwide operational needs, the railroad industry's increasing spectrum needs can best be met by reserving a portion of the WCS bands for allocation "in the traditional manner," similar to that employed in Parts 101 and 90 of the Commission's Rules, for use on a coordinated, shared basis by and among entities which have safety-related operational missions.¹⁷¹ AWWA suggests an allocation for operators of public water supplies, identifying several functions of such entities upon which public safety is directly dependent (e.g., fire-fighting, operations of health care facilities, and provision of healthy drinking water).¹⁷²

¹⁶⁶ APCO Reply Comments at 2.

¹⁶⁷ ITA Comments at 7.

¹⁶⁸ API Comments at 5-7.

¹⁶⁹ *Id.* at 6-7.

¹⁷⁰ AAR Comments at 3.

¹⁷¹ *Id.* at 4-7.

¹⁷² AWWA Comments at 3.

70. On the other hand, the record also reflects some doubt as to whether the 2.3 GHz band is appropriate for most public safety communications operations. In this connection, Motorola and DigiVox express doubt as to whether the 2.3 GHz band holds significant promise to solve public safety mobile communications needs because of the higher infrastructure costs and greater interoperability problems as compared to the lower frequency bands that are adjacent to those in which public safety entities now operate.¹⁷³ DigiVox notes in particular that the *PSWAC Final Report* did not identify the WCS bands as useful in meeting the public safety community's spectrum requirements.¹⁷⁴ ITA contends that, even if the Commission were to make a specific public safety allocation at 2.3 GHz, it would not significantly assist public safety entities. ITA reasons that because public safety entities do not currently operate in spectrum in or near the 2.3 GHz band, manufacturers would be unable either to produce equipment for a larger customer base or to maximize economies of scale as they are in a more typical spectrum allocation proceeding in which the spectrum for public safety systems is intermingled with, or allocated adjacent to, the bands for private radio services.¹⁷⁵ APCO asserts that the 2.3 GHz band is inappropriate for most public safety communications needs because of the high costs involved in constructing the very small cell sites needed to provide adequate coverage (including critical in-building penetration), and APCO concludes that the 2.3 GHz band is an unlikely home for public safety mobile systems.¹⁷⁶ While expressing some interest in the 2.3 GHz spectrum for video, data and fixed microwave, APCO states that "facilitating possible public safety use of a small portion of the 2.3 GHz band for non-mission critical operations will have little or no impact on the spectrum needs identified by PSWAC."¹⁷⁷ Accordingly, APCO requests that the Commission move forward to allocate at least 24 MHz of spectrum from UHF channels 60-69 to public safety¹⁷⁸ and suggests that the Commission recommend to Congress that it take action to permit a portion of the proceeds from the 2.3 GHz auction to be targeted for funding public safety communications systems in other bands.¹⁷⁹

¹⁷³ Motorola Comments at 9; DigiVox Reply Comments at 9-10. *See also* APCO Reply Comments at 4.

¹⁷⁴ DigiVox Reply Comments at 9-10.

¹⁷⁵ ITA Comments at 8.

¹⁷⁶ APCO Comments at 3.

¹⁷⁷ *See APCO Ex Parte Letter of January 30, 1997* at 1.

¹⁷⁸ *Id.*

¹⁷⁹ *See* APCO Comments at 5.

71. On the question of whether certain public safety needs might be met by commercial services provided on WCS spectrum, commenters generally expressed the view that, to some degree, commercial services can meet the needs of the public safety community and that the Commission should fashion service rules that will encourage WCS licensees to offer services that are consistent with the needs of public safety. Some commenters support the use of bidding credits for entities that propose a specific plan for satisfying public safety needs, or that make their facilities available to the public safety community on a wholesale basis.¹⁸⁰ One commenter suggests licensing WCS on the basis of service areas (such as EAs) that approximate the areas and jurisdictions in which public safety entities operate, and licensing of the spectrum in blocks that closely approximate the bandwidth requirements of public safety entities, so that bidders looking to provide solely public safety services would not be required to purchase more spectrum than needed for such purposes.¹⁸¹ AT&T suggests that one 10 MHz block in each service area be designated as a public safety block, for which any bidder may bid but which could be used only for public safety services such as 911, E911 and communications between emergency service personnel.¹⁸² If the Commission declines to reserve a 10 MHz block for public safety uses, AT&T suggests alternatively that the Commission condition the grant of each WCS authorization on the licensee's pledge to meet the needs of the public safety community by dedicating access if the licensee offers CMRS services using the WCS spectrum. Specifically, AT&T's suggests that if the licensee offers CMRS services in this spectrum, it would meet the needs of the public safety community by providing a specified percentage of their capacity for public safety uses on a primary basis.¹⁸³

72. Some commenters believe that it is difficult to determine at this time whether commercial WCS licensees will offer services that will be beneficial to public safety.¹⁸⁴ APCO asserts that, even if the specific commercial uses of the spectrum were known, commercial offerings in the band would satisfy, at most, only a small portion of the public safety community's needs because most of these needs require ubiquitous coverage, reliability,

¹⁸⁰ See, e.g., GTA Comments at 3; DigiVox Reply Comments at 10.

¹⁸¹ UTC Comments at 6.

¹⁸² AT&T believes that this spectrum would be valuable because many carriers would be willing to lease capacity or resell emergency services in order to meet their 911 obligations imposed by the Commission's rules, and that additional spectrum for these services would be used by carriers, either by leasing it to fulfill their public safety obligations, or by obtaining the spectrum through the WCS auction and reselling excess capacity to carriers that do not wish to fulfill their public safety obligations using the spectrum they obtained through other auctions. AT&T Comments at 9-10 and n. 31.

¹⁸³ AT&T Comments at 9-11 and n. 34.

¹⁸⁴ See, e.g., APCO Comments at 5-6; Motorola Comments at 8; AAR Reply Comments at 6.

instantaneous access and security that can be provided only by systems owned and operated by public safety agencies.¹⁸⁵ Another commenter contends that permitting public safety users to lease spectrum from commercial users cannot offer the same critical stability to public safety systems as a permanent allocation, and that threat of regulatory sanctions, even financial penalties, would be insufficient to ensure that commercial providers continue to make their services available for public safety uses.¹⁸⁶

73. In addition, Primosphere and BANM contend that to give full effect to the Congressional mandate to take into account the needs of public safety, we must take action in other pending proceedings. Primosphere argues that award of its pending satellite DARS licenses before licensing the WCS spectrum would address public safety needs because it has proposed a national, unscrambled, free broadcast service that will provide the public with timely public safety information during emergencies.¹⁸⁷ BANM argues that fully accommodating public safety spectrum needs in connection with WCS will allow the Commission to terminate a separate on-going proceeding proposing the adoption of a "Cellular Priority Access System" (WT Docket No. 96-86, Public Notice, April 18, 1996) by obviating the need for priority cellular access.¹⁸⁸

74. *Decision.* The Appropriations Act requires that we "take into account the needs of public safety radio services." Therefore, we must consider the communications needs of the public safety community in assigning WCS frequencies. The record compiled in this proceeding and in our public safety proceeding demonstrates that spectrum currently allocated to public safety spectrum is inadequate to meet the public safety community's voice and data needs.¹⁸⁹ In addition, this record suggests that currently allocated spectrum will not permit deployment by public safety agencies of needed advanced data and video systems.¹⁹⁰ The Appropriations Act requires, however, that the use of 30 MHz of spectrum in the 2.3 GHz

¹⁸⁵ APCO Comments at 5-6. *See also* Motorola Comments at 8.

¹⁸⁶ Pocket Comments at 5-6.

¹⁸⁷ Primosphere Comments at 4-5.

¹⁸⁸ BANM Comments at 10.

¹⁸⁹ *See PSWAC Final Report* at 19; *see also* ITA Comments at 7, and UTC Comments at 6. Though we cite the findings made in the *PSWAC Final Report* to the extent relevant to the instant proceeding, we are not in this proceeding endorsing the conclusions made in the *PSWAC Final Report*. As we discuss below, in our Public Safety proceeding (WT Docket No. 96-86), the Commission is considering the overall operational, technical and spectrum needs of the public safety community. The *PSWAC Final Report* has been made a part of the record in that proceeding.

¹⁹⁰ *Id.*

band be "assign[ed] . . . by competitive bidding pursuant to Section 309(j) of the Communications Act" ¹⁹¹ We therefore conclude that allocating a portion of the 2.3 GHz spectrum for public safety appears to be inconsistent with the Appropriations Act because, pursuant to our auction authority, we are not permitted to assign spectrum to public safety applicants by competitive bidding. ¹⁹²

75. In any case, even if spectrum were to be allocated for assignment only to public safety entities, we do not believe that such an allocation would be the best way to meet those needs. We note that the WCS spectrum was not identified in the *PSWAC Final Report* as useful in meeting the public safety community's spectrum requirements. In this regard, we believe that it is significant that APCO, the only public safety entity to comment in this proceeding, noted in its recent *ex parte* filing that "facilitating possible public safety use of a small portion of the 2.3 GHz band for non-mission critical operations will have little or no impact on the spectrum needs identified by PSWAC." ¹⁹³ In addition, we believe that it is significant that public safety entities do not currently have operations in any spectrum in or near the 2.3 GHz band. Thus, it may be more difficult for public safety entities to avail themselves of equipment economies of scale or to integrate this spectrum into their current communications systems. In addition, even if WCS spectrum were of some use to the public safety community, costly networks would still need to be constructed in order for useful services to be provided. In this regard, we find it significant that, as noted above, several commenters (both public safety entities and others) questioned whether a specific public safety allocation at 2.3 GHz would significantly assist public safety entities given the technical configuration and the financial resources that a 2.3 GHz system would require.

76. The record in this proceeding also demonstrates that public safety agencies require additional funding to enable them to migrate to new spectrum and to upgrade and purchase new equipment. In addition, we note that the *PSWAC Final Report* found, "the radio systems used by the Public Safety community are laboring under increasing burdens. Equipment is old and funding for new equipment is often scarce." ¹⁹⁴ The *PSWAC Final Report* also found that "[f]unding for acquisition of new spectrum-efficient technologies and/or relocation to different frequency bands is likely to be a major impediment to improving Public Safety

¹⁹¹ Appropriations Act, Section 3001(a)(2).

¹⁹² Section 309(j) of the Communications Act permits use of competitive bidding only when the principal use of spectrum is, or is reasonably likely to be, for subscription-based services. 47 U.S.C. § 309(j)(2)(A).

¹⁹³ See *APCO Ex Parte Letter of January 30, 1997* at 1.

¹⁹⁴ *PSWAC Final Report* at 6.

wireless systems."¹⁹⁵ The *PSWAC Final Report* includes recommendations regarding the future operational requirements of public safety agencies, methods for achieving greater interoperability among agencies, the technologies that are and will be available to meet public safety requirements, and the amount of radio spectrum that will be necessary to meet these requirements. Many of these requirements can be met by our allocation of additional spectrum to public safety agencies, and the report examined alternative approaches for obtaining funding to assist public agencies in an orderly migration to new spectrum allocations and advanced technologies. With respect to the funding issue, the Transition Subcommittee of PSWAC suggested that

[the Commission] take action to assist federal, state, and local government public safety agencies acquire systems that will provide mechanisms for interoperability among both multi-jurisdictional boundaries and multi-echelons of government. Taking into consideration that the Commission has raised considerable revenue from spectrum auctioning, an initiative should be launched to use some of that money to assist transition into new spectrum. This may require Congressional action to allow the use of auction revenues for distribution to public safety agencies in the form of grants.¹⁹⁶

77. We believe that, in order for the future needs of public safety wireless communications to be satisfied, new sources of funding will have to be devised. This is true regardless of the amount of spectrum made available for public safety. In this proceeding, we have considered whether funds from the WCS auction could provide a source of funding for public safety agencies. We note, however, that Section 309(j)(8)(A) requires that "all proceeds from the use of a competitive bidding system under this subsection shall be deposited in the Treasury" ¹⁹⁷ The only exceptions to this general rule are contained in Sections 309(j)(8)(B) (providing for retention of revenues as an offsetting collection for developing and implementing the auction program) and 309(j)(8)(C) (providing for deposit of upfront payments in an interest-bearing account, with interest transferred to the Telecommunications Development Fund). Therefore, it appears that legislative action is required before auction revenues can be used to provide a source of funding for public safety agencies to acquire new communications technologies. It is our belief that public safety agencies would benefit greatly from such action. We note that legislation recently introduced by Senator John McCain would provide for a portion of the revenues raised from an auction of spectrum currently used by television broadcast stations operating on channels 60-69 to be

¹⁹⁵ *Id.* at 21.

¹⁹⁶ *PSWAC Final Report*, Appendix E -TRSC Final Report, at 44.

¹⁹⁷ See 47 U.S.C. § 309(j)(8)(A).

earmarked for "funding State and local law enforcement and public safety agencies' mission-related radio communications capabilities."¹⁹⁸ We believe that legislative approaches such as that taken in the McCain bill would substantially aid public safety agencies in their communications needs and thereby improve the safety of all Americans.

78. Though we have concluded that designating 2.3 GHz spectrum for use exclusively by public safety entities is not advisable, we emphasize our continuing commitment to address public safety needs. Specifically, the Commission is considering the operational, technical and spectrum requirements of the public safety community in our Public Safety proceeding.¹⁹⁹ That proceeding examines what spectrum bands could be useful for meeting existing and future communications requirements, including voice, data (such as transmission of fingerprints, building floor plans and medical data), and video for surveillance monitoring. We expect that additional spectrum will be made available for public safety use as a result of that proceeding, and that our decision in that proceeding will address the specific communications requirements and bands identified by PSWAC. In addition, we note that several commenters, including APCO and Motorola, reiterated the public safety community's need for 24 MHz of spectrum at UHF channels 60-69.²⁰⁰ We believe that their proposal has merit and plan to give it serious consideration in our Digital Television proceeding.²⁰¹ We note that legislation recently introduced by Senator McCain would direct the Commission to allocate 24 MHz of the channel 60-69 spectrum to public safety use,²⁰² and that the Administration's 1998 budget also supports such a reallocation.²⁰³

¹⁹⁸ See S. 255, The Law Enforcement and Public Safety Telecommunications Empowerment Act, as introduced in the United States Senate on February 4, 1997, Section 5(b)(1).

¹⁹⁹ See *The Development of Operational, Technical, and Spectrum Requirements for Meeting Federal, State and Local Public Safety Agency Communication Requirements Through the Year 2010*, WT Docket No. 96-86, *Notice of Proposed Rule Making*, 11 FCC Rcd 12460 (rel. April 10, 1996).

²⁰⁰ See *APCO Ex Parte Letter of January 30, 1997* and Motorola Comments at 9.

²⁰¹ We recently stated in our Digital Television proceeding that the channel 60-69 spectrum "could be used to meet public safety needs." *Advanced Television Systems and Their Impact Upon the Existing Television Broadcast Service*, MM Docket No. 87-268, *Sixth Further Notice of Proposed Rule Making*, 11 FCC Rcd 10968 (rel. August 14, 1996) at ¶ 26.

²⁰² See S. 255, The Law Enforcement and Public Safety Telecommunications Empowerment Act, as introduced in the United States Senate on February 4, 1997, Section 4(a).

²⁰³ See *Testimony of Larry Irving, Assistant Secretary for Communications and Information, U.S. Department of Commerce, before the Subcommittee on Telecommunications, Trade and Consumer Protection of the U.S. House of Representatives Committee on Commerce, February 12, 1997*, at 24; see also *Statement by Attorney General Janet Reno on Proposal to Set Aside Communications Frequencies for Public Safety Use*, released February 6, 1997.

79. We decline to adopt special provisions to benefit petroleum and natural gas providers, railway operators and operators of water supply systems. Though we recognize that these entities perform valuable public service functions, we do not believe that Congress intended that they be included in the class of "public safety radio services" that the Appropriations Act directs us to take into account in this proceeding. The Commission's Rules define that term to include "Local Government, Police, Fire, Highway Maintenance and Forestry-Conservation Radio Services."²⁰⁴ We decline to deviate from this established definition.

D. Service and Technical Rules

1. Eligibility

80. *Background.* In the *NPRM*, we proposed that there be no restrictions on eligibility for WCS licensees, other than the foreign ownership restrictions set forth in Section 310 of the Communications Act.²⁰⁵

81. *Comments.* Only four commenters specifically addressed the issue of eligibility for WCS. Of these, three support open eligibility, subject to foreign ownership restrictions.²⁰⁶ CTIA specifically states that it is imperative that existing cellular, PCS and SMR service providers be permitted to bid on WCS licenses to encourage immediate and efficient spectrum use, to provide known, viable competition, and, within the existing service areas, to avoid imposing competitive disadvantages on those entities.²⁰⁷ In this regard, CTIA notes that excessive concentration of licenses, which is the traditional rationale for excluding existing wireless carriers from auctions, is not a problem in the wireless industry because it is fully competitive.²⁰⁸

²⁰⁴ 47 C.F.R. § 90.15. Furthermore, we note that the *PSWAC Final Report* defines "Public Safety Service Categories" as including "Police Radio Service;" "Fire Radio Service;" "Highway Maintenance Radio Service;" "Forestry-Conservation Radio Service;" "Local Government Radio Service;" "Emergency Medical Radio Service;" and "Special Emergency Radio Service." *PSWAC Final Report* at 12-13.

²⁰⁵ See 47 U.S.C. § 310.

²⁰⁶ ALLTEL Comments at 4; CTIA Comments at 8; SNET Mobility Reply Comments at 2.

²⁰⁷ CTIA Comments at 8.

²⁰⁸ *Id.* at 9.

82. CPI expresses a general concern that the lack of ownership limits (*e.g.*, the CMRS spectrum cap) could undermine the pro-competitive goals established by Congress and the Commission.²⁰⁹ CPI also is concerned that the only limits on eligibility proposed by the Commission, foreign ownership limitations, appear to be unevenly distributed among the services for which the WCS spectrum may be used. Specifically, CPI questions the Commission's proposal to maintain the restrictions set forth in Sections 310(a) and 310(b)(1) and (2) of the Communications Act, but not 310(b)(3) and (4), "which limit the FCC's authority to grant a license to any corporation with 20% or 25% foreign ownership."²¹⁰ CPI asserts that, although the proposed rule Section 27.302 appears to resolve this issue by limiting foreign ownership consistent with all subparts of Section 310(b), proposed Section 27.302 raises another issue by appearing to prohibit foreign ownership of a WCS authorization only with respect to CMRS, and not with respect to broadcast or other common carrier services.²¹¹

83. *Decision.* We conclude that, with the exception of the foreign ownership restrictions set forth in Section 310 of the Communications Act,²¹² there will be no eligibility restrictions on participation in WCS. As we stated in the *NPRM*, opening the WCS market to a wide range of applicants will permit and encourage entrepreneurial efforts to develop new technologies and services. We also believe that, given the relatively large amount of spectrum that is available to provide services similar to those that can be operated on the WCS spectrum, providing open eligibility in this instance will not lead to excessive concentration of market power.²¹³ We agree with CPI that Section 27.302 should ensure that WCS licensees are subject to all of the foreign ownership restrictions set forth in Section 310 of the Communications Act to the extent the restrictions are applicable to the particular service in question. Thus, for example, common carrier services would be subject to the restrictions in Section 310(b).²¹⁴

²⁰⁹ CPI Comments at 7-8.

²¹⁰ *Id.*

²¹¹ *Id.* at 6 and n. 4.

²¹² See 47 U.S.C. § 310.

²¹³ We also will not preclude the pending satellite DARS applicants from participating in the competitive bidding process for the 2305-2320 and 2345-2360 MHz bands.

²¹⁴ See 47 U.S.C. § 310.

2. CMRS Spectrum Cap

84. *Background.* In the *NPRM*, we sought comment on whether WCS spectrum used to provide commercial mobile radio service ("CMRS") should count against the 45 MHz spectrum cap that applies to certain CMRS licensees. We recognized that applying the spectrum cap could exclude firms with the most experience and innovative technologies from participating in the auction and having the opportunity to use this spectrum to serve the public. At the same time, we noted that if a CMRS provider with the maximum amount of spectrum permitted under our current CMRS spectrum cap were to acquire WCS spectrum, that provider possibly could gain a dominant position in the CMRS marketplace. We therefore requested that commenters address whether the WCS spectrum is likely to be used to provide CMRS services and, if so, whether the current CMRS market is sufficiently competitive that the considerations that gave rise to adoption of the CMRS spectrum cap are inapplicable to the WCS spectrum. In addition, we asked that commenters address the potential costs of applying the cap to the WCS spectrum in terms of lost economies of scale and scope that might exist if CMRS licensees were allowed to acquire this spectrum. Finally, to the extent they believe that the WCS spectrum will be used for CMRS services, we asked commenters to discuss any alternative mechanisms that would be appropriate to protect against the concentration of control of licenses for CMRS spectrum, to ensure vigorous competition in wireless services and to implement the Communications Act.

85. *Comments.* Commenters addressing the issue of the CMRS spectrum cap fall generally into three categories: (1) those who believe the spectrum cap should apply to WCS;²¹⁵ (2) those who believe the spectrum cap should not apply to WCS;²¹⁶ and (3) those who believe that this issue requires further analysis by the Commission.²¹⁷ Of those who

²¹⁵ PCIA Comments at 3; Pocket Comments at 4; UTC Comments at 8; Florida Cellular Comments at 3; BellSouth Comments at 11-12; Omnipoint Comments at 10; GTE Comments at 7; CIRI Comments at 15; BANM Comments at 12-13; DigiVox Comments at 9 and Exhibit 5 - "Report of Ronald M. Harstad, Ph.D. on WCS Auctions"; SNET Mobility Reply Comments at 4-5; Sprint PCS/Sprint Reply Comments at 3; AMTA Reply Comments at 5-6; Mtel Reply Comments at 4-5; NABOB Informal Comments at 4. CTIA believes that the spectrum cap should apply, regardless of what type of service is offered, but suggests that the cap be relaxed to 55 MHz. CTIA Comments at 16-17. Similarly, CIRI favors a limited safe harbor for licensees whose spectrum holdings in excess of 45 MHz do not cover more than 10 percent of the POPs nationwide because current and prospective licensees did not anticipate the availability of additional CMRS spectrum when forming business plans for wireless services. CIRI Comments at 15. Alternatively, Comcast supports a limited, market-by-market application of the CMRS spectrum cap for those markets in which an incumbent CMRS provider seeks to provide mobile telephony services. Comcast Reply Comments at 4.

²¹⁶ RTG Comments at 9; Vanguard Comments at 6-7; PRTC Comments at 5; GTA Comments at 3; ALLTEL Comments at 4; AT&T Comments at 6-7.

²¹⁷ CPI Comments at 7.

support application of the spectrum cap, the primary argument made is that if WCS is used to provide CMRS, WCS licensees must be placed on comparable footing with current CMRS providers.²¹⁸ For example, PCIA states that all competitors in CMRS should be subject to the same service rules in order to permit the marketplace to function equitably and effectively.²¹⁹ SNET Mobility states that the spectrum cap is necessary to prevent excessive concentration of licenses.²²⁰ Similarly, Omnipoint contends that if WCS licensees are permitted to offer mobile services without being subject to the spectrum cap, the utility of the cap will be undermined. Omnipoint argues further that not applying the spectrum cap would be unfair to PCS licensees and small businesses since the wealthiest PCS licensees would be able to aggregate 2.3 GHz of spectrum to the detriment of others who relied on the assumption that no new spectrum in the 2 GHz band would be released.²²¹ Florida Cellular states that allowing WCS licensees to compete with existing cellular and PCS providers without being subject to the same restrictions that now apply to CMRS providers may cause spectrum users and financial backers to lose confidence in our spectrum management process, making them less willing to invest in entities interested in obtaining spectrum and developing services through auctions.²²² Finally, DigiVox contends that, despite arguments to the contrary, the spectrum cap remains necessary at its current 45 MHz limit to enable small businesses and other designated entities to effectively compete for spectrum and to participate in the provision of service.²²³

86. Commenters opposing application of the CMRS spectrum cap to WCS believe that the goals of the spectrum cap -- promoting a vigorous and competitive market for the provision of commercial mobile radio services and ensuring that no single provider is able to aggregate enough spectrum to preclude or significantly reduce the provision of service by

²¹⁸ See, e.g., PCIA Comments at 3; Pocket Comments at 4; UTC Comments at 8; Florida Cellular Comments at 3; Omnipoint Reply Comments at 4; SNET Mobility Reply Comments at 5; Sprint PCS/Sprint Reply Comments at 3.

²¹⁹ PCIA Comments at 11.

²²⁰ SNET Mobility Reply Comments at 5.

²²¹ Omnipoint Comments at 10. Omnipoint further believes that all licenses should be limited to no more than 10 MHz of the 2.3 GHz spectrum. *Id.*

²²² Florida Cellular Comments at 3.

²²³ DigiVox Reply Comments at 1-2, and attached "Report for Reply Comments on WCS Auctions," by Ronald M. Harstad, Ph.D. DigiVox argues in addition that the majority of those commenters opposing application of the CMRS spectrum cap to WCS are those who have already reached the limit. *Id.* at 4.

effective competitors -- have already been met.²²⁴ Vanguard points to the existence of two cellular and up to six PCS licensees per market, and the presence or anticipated presence of an enhanced SMR provider, and expresses the view that an existing CMRS provider who acquires a WCS license would be in no position to dominate the marketplace.²²⁵ Commenters also state that, in the interest of ensuring that the largest number of entities participate in the auction and in the provision of WCS, current CMRS providers should not be excluded.²²⁶ For example, AT&T states that application of the spectrum cap to WCS may preclude efficient spectrum use by denying CMRS providers, who can speed innovative service to the public, the opportunity to realize economies of scale and scope in the development and deployment of services.²²⁷ AT&T further asserts that application of the cap will discourage participation by many CMRS providers, which would reduce auction revenues through both lack of front-end participation and reduction of post-auction marketability.²²⁸

87. *Decision.* The decisional factor in whether to apply the CMRS spectrum cap to any particular service is a balancing of the potential benefits and costs. We believe that, in these unique circumstances where we are allocating spectrum and licensing a wholly new service pursuant to congressional directive, the potential benefits do not outweigh the potential costs. Thus we will not count holdings of WCS spectrum at 2.3 GHz against the CMRS spectrum cap.

88. As we noted in the *NPRM*, the CMRS spectrum cap was imposed out of concern that "excessive aggregation [of spectrum] by any one of several CMRS licensees could reduce competition by precluding entry by other service providers and might thus confer excessive market power on incumbents."²²⁹ The spectrum cap is intended to promote a vigorous competitive market for the provision of commercial mobile radio services, and to ensure that

²²⁴ See, e.g., AT&T Comments at 6-7; RTG Comments at 9; Vanguard Comments at 6-7; GTA Comments at 3; PRTC Reply Comments at 4-5. GTA argues further that disaggregation and partitioning will allow smaller service providers to serve specialized areas, and that imposing the cap is inconsistent with the objectives of the competitive bidding process. GTA states that because the cap limits the opportunity of large groups of entities holding CMRS licenses to bid, non-market incentives operate to assign the spectrum for less efficient uses. GTA Comments at 3.

²²⁵ Vanguard Comments at 6-7.

²²⁶ See, e.g., ALLTEL Comments at 4; PRTC Reply Comments at 4-5.

²²⁷ AT&T Comments at 7-8.

²²⁸ AT&T Comments at 7-8. AT&T also suggests that the Commission initiate a proceeding to examine whether the CMRS spectrum cap should be retained at all. See *id.* at n. 26.

²²⁹ *Implementation of Sections 3(n) and 332 of the Communications Act*, GN Docket No. 93-252, *Third Report and Order*, 9 FCC Rcd 7988, 8101 (1994) ("CMRS Third Report and Order").

each mobile service provider (*i.e.*, cellular, PCS or SMR licensee) has the opportunity to obtain sufficient spectrum to compete effectively and that no single provider is able to preclude the provision of service by effective competitors or significantly reduce the number of competitors by aggregating spectrum.²³⁰

89. As discussed more fully in Section III.D.7, *infra*, because the spectrum allocated for satellite DARS is situated between the two WCS bands, limitations on out-of-band emissions by equipment operating on WCS spectrum are needed to protect against interference with sensitive satellite DARS reception. We believe that the out-of-band emission limits we are adopting likely will, at least in the near term, make mobile operations in the WCS spectrum technologically infeasible. Hence, there is little likelihood that allowing an incumbent CMRS licensee to acquire enough WCS spectrum that its total CMRS and WCS spectrum holdings exceed the 45 MHz cap would have anticompetitive consequences for mobile services. Application of the CMRS spectrum cap to WCS spectrum is not necessary to guard against excessive concentration in the CMRS market or the accumulation of undue market power.

90. Conversely, even if it is technically feasible to use this spectrum for CMRS-type service, applying the cap and excluding many existing CMRS providers from acquiring WCS licenses would, we believe, carry significant potential costs for consumers. With their existing base station infrastructures, CMRS licensees may be the most efficient users of WCS spectrum because economies of scope may be large in the provision of new services combined with the provision of conventional mobile voice CMRS. For example, it may be that a current CMRS licensee would be able to use its existing infrastructure to provide fixed services in the most cost efficient manner.²³¹ Site acquisition and zoning approval for new facilities is both a major cost component and a major delay factor in deploying wireless systems. Facilities at existing cellular or PCS sites might accommodate additional equipment for new services or be modified to do so at a significantly lower cost than deploying a whole new cell infrastructure for the new service in a crowded environment. There may be other economies of scope in the provision of different services as well. Applying the CMRS spectrum cap to the WCS spectrum would interfere with the realization of these savings by preventing the direct participation by those entities who own the existing CMRS

²³⁰ See *CMRS Third Report and Order* at 8108 (¶¶ 258-260).

²³¹ The record suggests that a desired use of WCS spectrum is for broadband data applications such as wireless Internet access. See, *e.g.*, ADC Comments at 3-13; ISA Comments at 1-2; Omnipoint Comments at 1-7 and Reply Comments at 2; SBC Comments at 4; TIA Comments at 14 and Reply Comments at 1; Sprint PCS/Sprint Reply Comments at 4; USIPA Reply Comments at 2. It may be that these services can be most efficiently provided using an existing CMRS infrastructure.

infrastructure, and consequently, prevent consumers from benefiting from these savings, with little off-setting benefit in competition.

91. We recognize that not applying the cap to WCS spectrum may result in some CMRS licensees acquiring spectrum and, provided that the technical obstacles noted *infra* can be overcome, that at some point these licensees may use WCS spectrum to compete against other CMRS licensees that have not acquired WCS spectrum. We do not believe, however, that such a circumstance substantially risks impairing competition in the CMRS marketplace. When 30 MHz PCS systems are fully deployed with the minimum number of cells needed for competitive coverage, they will provide a large increase in capacity over what is currently available. According to a recent article, a 30 MHz PCS licensee is likely to use only a twentieth of its startup capacity by the year 2000 and only a tenth by 2005.²³² As for the argument that regulatory parity compels application of the CMRS spectrum cap to WCS spectrum, we disagree. Whether or not the cap is applied, all CMRS providers stand on equal footing with respect to the acquisition of WCS licenses, and any entity using WCS spectrum to provide CMRS services will be regulated in the same manner as all other CMRS providers.²³³

3. Disaggregation and Partitioning

92. *Background.* In the *NPRM*, we proposed disaggregation and partitioning rules for WCS licenses to promote the most efficient use of the WCS spectrum and to overcome entry barriers by allowing for the creation of smaller licenses that would require less capital, thereby facilitating greater participation by smaller entities such as small businesses, rural telcos, and businesses owned by minorities and women. We requested comment on what limits, if any, should be placed on a WCS licensee's ability to partition its service area and disaggregate its spectrum. We also noted the then-pending rule making proceeding in WT Docket No. 96-148, which addressed geographic partitioning and spectrum disaggregation by CMRS licensees,²³⁴ and asked for comment on whether the approach proposed in that proceeding should apply to the WCS spectrum. We have since adopted the partitioning and disaggregation approach proposed in WT Docket No. 96-148 for broadband PCS.²³⁵

²³² See "System Costs, Not Capacity, Should Drive PCS Buildout Choices," Radio Communications Reports, September 16, 1996, p. 66.

²³³ We note that some commenters argue that the CMRS spectrum cap should be lifted entirely, or at least raised. See, e.g., AT&T Comments at 8, n. 26; CTIA Comments at 16-17.

²³⁴ See *Geographic Partitioning and Spectrum Disaggregation by Commercial Mobile Radio Service Licensees*, WT Docket No. 96-148, Notice of Proposed Rule Making, 11 FCC Rcd 10187 (1996).

²³⁵ See *Partitioning and Disaggregation R&O*, *supra*.